

Applicant : Sunderarajan G. Karaikurichi
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Attorney's Docket No.: 15786-050001

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. Cancelled.
2. Cancelled.
3. Cancelled.
4. (Previously Presented) A computer implemented method comprising:
translating a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and
thereafter, translating one or more assembly constraints of the mechanical design assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating assembly constraints includes converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system; and
wherein said translating of one or more assembly constraints comprises identifying geometric entities within said translated representations that are counterpart to geometric entities of said pre-translation representations constrained by said one or more assembly constraints and correspondingly constraining said counterpart geometric entities within said translated representations; and
wherein said identifying comprises:
identifying said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

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selecting a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and
for each of said identified geometric entities within said pre-translation representations, applying the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

5. Cancelled.

6. Cancelled.

7. Cancelled.

8. Cancelled.

9. Cancelled.

10. (Previously Presented) An article of manufacture comprising:
a recordable medium having recorded thereon a plurality of machine executable programming instructions designed to program a host machine to enable the host machine to
translate a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and

thereafter, translate one or more assembly constraints of said assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating assembly constraints includes converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system; and

wherein said programming instructions enable the host machine to:

identify geometric entities within said translated representations that are counterpart to geometric entities of said pre-translation representations constrained by said one

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or more assembly constraints and

correspondingly constraining said counterpart geometric entities within said translated representations; and

wherein said programming instructions further enable the host machine to:

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, apply the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

11. Cancelled.

12. Cancelled.

13. Cancelled.

14. (Previously Presented) A computer system comprising:

a storage medium having stored therein a plurality of programming instructions to translate a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly, and thereafter, translate one or more assembly constraints of said assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating assembly constraints includes converting a data format of the assembly constraints from a first format of a first design system to a second, different format of a second, different design system; and

a processor coupled to the storage medium to execute the programming instructions; and wherein said programming instructions are designed to:

identify geometric entities within said translated representation that are

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counterpart to geometric entities of said pre-translation representations constrained by said one or more assembly constraints and

correspondingly constraining said counterpart geometric entities within said translated representations; and

wherein said programming instructions are designed to:

identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, apply the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

15. Cancelled.

16. (Previously Presented) A method comprising:

determining geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly; and

correspondingly constraining the determined counterpart geometric entities within the translated representations of the sub-assemblies and/or parts to; and

wherein said determining comprises:

identifying said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;

selecting a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations,

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applying the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

17. Cancelled.

18. (Previously Presented) An article of manufacture comprising:
a recordable medium having recorded thereon a plurality of machine executable programming instructions designed to program a host machined to enable the host machine to:
determine geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly;
and
correspondingly constraining the determined counterpart geometric entities of the plurality of translated representations of the sub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly; and
wherein said programming instructions enable the host machine to:
identify said geometric entities within said pre-translated representations constrained by said one or more assembly constraints;
select a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and
for each of said identified geometric entities within said pre-translation representations, apply the selected spatial sampling points to geometric entities within said translated representations to identify the counterpart geometric entities.

19. Cancelled.

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20. (Previously Presented) A computer system comprising:

a storage medium having therein a plurality of programming instructions to determine geometric entities within a plurality of translated representations of sub-assemblies and/or parts of a mechanical design assembly that are corresponding to geometric entities within a plurality of pre-translation representations of the sub-assemblies and/or parts of the mechanical design assembly, that are constrained by one or more assembly constraints of the mechanical design assembly, each assembly constraint defining an association between two or more parts or sub-assemblies of the assembly, and correspondingly constraining the determined counterpart geometric entities of the plurality of translated representations of the sub-assemblies and/or parts to effectively translate said one or more assembly constraints of the mechanical design assembly; and

a processor coupled to the storage medium to execute the program instructions; and
wherein said programming instructions are designed to:

identify said geometric entities within said pre-translated representations
constrained by said one or more assembly constraints;

select a plurality of spatial sampling points for each of said identified geometric entities within said pre-translation representations, and

for each of said identified geometric entities within said pre-translation representations, apply the selected spatial sampling points to corresponding geometric entities within said translated representations to identify the counterpart geometric entities.

21. Cancelled.

22. Cancelled.

23. (Currently Amended) ~~The method of claim 1,~~ A computer implemented method comprising:

translating a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and

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thereafter, translating one or more assembly constraints of the mechanical design assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating an assembly constraint includes: identifying one or more geometry elements in the first representation that are constrained by the assembly constraint, identifying one or more corresponding geometry elements in the second representation and applying the assembly constraint to the one or more corresponding geometry elements in the second representation;

wherein said identifying one or more corresponding geometry elements in the second representation comprises:

selecting a plurality of spatial sampling points for each of said identified geometry elements within said pre-translation first representation, and

for each of said identified geometry elements within said pre-translation first representation, using coordinates of the selected spatial sampling points to identify a corresponding geometry element within said translated second representation.

24. ~~(Currently Amended) The article of claim 7,~~ An article of manufacture comprising: a recordable medium having recorded thereon a plurality of machine executable programming instructions designed to program a host machine to enable the host machine to:

translate a first representation of parts or sub-assemblies of a mechanical design assembly into a second, different representation of the parts or sub-assemblies of the mechanical design assembly; and

thereafter, translate one or more assembly constraints of said assembly, where each assembly constraint defines an association between two or more parts or sub-assemblies of the mechanical design assembly and where translating an assembly constraint includes : identifying one or more geometry elements in the first representation that are constrained by the assembly constraint, identifying one or more corresponding geometry elements in the second representation and applying the assembly constraint to the one or more corresponding geometry elements in the second representation;

wherein said programming instructions enable the host machine to:

select a plurality of spatial sampling points for each of said identified geometry

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elements within said pre-translation first representation, and

for each of said identified geometry elements within said pre-translation first representation, use coordinates of the selected spatial sampling points to identify the corresponding geometry elements within said translated second representation.

25. ~~(Currently Amended) The computer system of claim 11,~~ A computer system comprising:
a storage medium having stored therein a plurality of programming instructions to
translate a first representation of parts or sub-assemblies of a mechanical design assembly into a
second, different representation of the parts or sub-assemblies of the mechanical design
assembly, and thereafter, translate one or more assembly constraints of said assembly, where
each assembly constraint defines an association between two or more parts or sub-assemblies of
the mechanical design assembly and where translating an assembly constraint includes:

identifying one or more geometry elements in the first representation that are
constrained by the assembly constraint, identifying one or more corresponding geometry
elements in the second representation and applying the assembly constraint to the one or more
corresponding geometry elements in the second representation; and

a processor coupled to the storage medium to execute the programming instructions;

wherein said programming instructions are designed to:

select a plurality of spatial sampling points for each of said identified geometry elements within said pre-translation first representation, and

for each of said identified geometry elements within said pre-translation first representation, use the selected spatial sampling points to identify the corresponding geometry elements within said translated second representation.